

THE MINERAL INDUSTRY OF

IRAN

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In 2000, Iran, which was the world's fourth largest producer of crude oil, averaged about 3.72 million barrels per day (Mbbbl/d). Average crude production had been 3.56 Mbbbl/d in 1999 and 3.63 Mbbbl/d in 1998 (U.S. Energy Information Administration, 2001). At the end of 2000, Iran had the second largest natural gas reserves (23 trillion cubic meters) and the fifth largest crude oil reserves [89.7 billion barrels (Gbbbl)] in the world according to the Oil & Gas Journal (2000b). These figures apparently do not include 1999 or 2000 Iranian reserve additions. Petroleum continued to provide the bulk of Iran's foreign exchange.

The gross domestic product of this Middle Eastern country of about 63 million people was estimated to be \$110.8 billion in 1999 (the last year for which data were available) (World Bank Group, August 30, 2000, Iran, Islamic Rep. at a glance, accessed September 10, 2001, at URL http://www.worldbank.org/cgi-bin/sendoff.cgi?page=%2Fdata%2Fcountrydata%2Faag%2Firn_aag.pdf). Although inflation was high, according to the Iranian Central Bank, it dropped to about 13% in 2000 compared with 14.5% in 1998 and about 50% in 1995 (Middle East Economic Digest, 2001b).

Government Policies and Programs

During 2000, the Government merged the Ministry of Mines and Metals and the Ministry of Industry to form the Ministry of Industry and Mines. Parliament forwarded a draft investment law to the Council of Guardians for approval. When signed, the new law will replace the Law on Attraction and Protection of Foreign Investment (LAPFI) (Dinmore, 2000). Under LAPFI, direct foreign investment was restricted to joint ventures.

The loss of projected revenue during the oil price decline in 1997, 1998, and early 1999 focused the Government on the need for a more diversified economy. During the Third Five-Year Economic Development Plan for the Iranian years 1379 to 1384 (March 21, 2000, to March 20, 2005), the Government proposed to privatize 40 mineral industry companies affiliated with the Ministry of Industry and Mines and 23 companies associated with the Ministry of Petroleum. This continues the privatization program that has been ongoing for the past several years through which the Government has divested itself of numerous smaller mineral enterprises.

Since 1998, the Government has allowed foreign investment in solid mineral exploration joint ventures. Following the 1998 National Iranian Oil Co. (NIOC) proposal to contract out about 100 oil and gas projects to international companies, the Government invited foreign investment into the solid minerals sector in 1999 as it showcased 102 mining and mineral-processing projects at the First International Mines & Metals Investment Forum (Ministry of Mines & Metals, 1999).

Most proposed foreign investment contacts in the minerals sector were based on a buy-back scheme under which the contractors developed awarded projects for a contract-specified rate of return for a specified period after recovering their initial investment from the project's output. The Government had tailored the buy-back procedure to conform with Article 153 of the Iranian Constitution, which prohibited foreign control over natural resources (Corzine, 1998). During 2000, the Government evaluated various revisions to the buy-back procedure for petroleum operations to address published concerns that the current (2000) formula encouraged overproduction during the initial contract term, contrary to good reservoir management procedures and at the expense of long-term field production (Middle East Economic Digest, 2001c, p. 28).

The U.S. Government's Iran and Libya Sanctions Act of 1996 (ILSA) (Public Law 104-172), which proscribed any company (American or foreign) from exceeding a \$20-million-per-year investment or trading limit with Iran in the petroleum sector, initially had hampered foreign investment in petroleum and other mineral industry projects in Iran. Since 1998, however, many European nations have reestablished official relations with Iran and have not discouraged investment in Iran.

In 1998, the U.S. Government waived sanctions against an international consortium that was developing the offshore South Pars gasfield (Middle East Economic Digest, 1998). In 1999 and 2000, the U.S. Government lifted the restrictions on the sale of spare parts for Iranian civilian passenger aircraft; modified the restrictions on the export of food, medicine, and medical equipment to Iran; and allowed the import of Iranian carpets and certain food products into the United States. The gradual reduction of restrictions lead to the anticipation that the U.S. Government would allow the ILSA to expire in 2001. Without ILSA, additional international companies would probably invest in the Iranian minerals sector (Middle East Economic Digest, 2001a; Oil & Gas Journal, 2001). In addition to ILSA, American citizens and companies were banned from investing or participating in Iran's mineral sector activities under Presidential Executive Orders 12957 of March 15, 1995, 12959 of May 6, 1995, and 13059 of August 19, 1997.

Structure of the Mineral Industry

The overall management of the minerals sector was under the auspices of the Ministry of Industry and Mines. The Ministry's authority covers all mining, smelting, and refining industries except oil and gas, which were administered by the Ministry of Petroleum. Most of the estimated 2,700 active mines were privately owned, although the State retained operational control of the larger companies in the minerals sector.

Commodity Review

Metals

Aluminum.—Primary aluminum production was, for the most part, derived from the Iranian Aluminium Co. plant in Arak. Commissioning of Al-Mahdi Aluminium Corp.'s aluminum smelter at Bandar Abbas slowly continued; only 60 of the plant's 240 pots had been brought online since the smelter's 1997 startup (Metal Bulletin 2000a). Construction continued at the 280,000-metric-ton-per-year-(t/yr)-capacity alumina refinery at Jajarm, about 480 kilometers (km) northeast of Tehran; delays were attributed to design problems (Iran Daily, September 5, 2000, Jajrom alumina plant back on track, accessed September 11, 2000, at URL <http://www.iran-daily.com/4/>).

Chromite.—Sepahan Steel Co. of Iran and international investors were to develop an 18,000-t/yr chromite mine at Abadeh. ABB Industrie AG of Switzerland, Evicom of Austria, Baft Ferrochrome Industrial Co. of Iran, and Navid Ehya Sepahan of Iran reportedly agreed to build a 25,000-t/yr ferrochrome plant in Baft in Kerman Province and a 25,000-t/yr ferrochrome plant at Abadeh in Fars Province. Construction of the plants was projected to take 2 years (Iran Daily, June 18, 2000, \$74 million ferrochrome deal concluded, accessed June 19, 2000, at URL <http://www.iran-daily.com/1/>; Iran Daily, August 1, 2000, Swiss firms invest in Abadeh chromite mine, accessed August 4, 2000, at URL <http://www.iran-daily.com/2/>).

Copper.—Anglo Exploration GmbH of Germany and General Iranian Mining Co. of Iran explored for copper in Zarshuran and undertook regional exploration for copper, gold, and zinc. BHP Ltd. evaluated the porphyry copper deposit of the Jabal-Barez region in Hormozgan Province.

In 1999, Union Capital Ltd. of Australia explored the North-East Copperbelt with Ehya Sanaya Khorassan Co. of Iran. Identified copper prospects included the Halak Abad prospect in the northeast and the Hazy Kandy prospect in the northwest. Reconnaissance exploration of the Sistan-va-Baluchestan Province by Zarcán Minerals Inc. of Canada resulted in the acquisition of 15 exploration permits. Zarcán formed a joint venture with National Iranian Copper Industries Co. (NICICO) to explore the Kuh-e Lar prospect.

Construction continued at NICICO's Khatounabad copper smelter, 20 km from the Sar Cheshmeh copper complex in southeastern Iran. The 80,000-t/yr-capacity plant reportedly was 62% complete (Iran Daily, September 21, 2000, SCC production to double, accessed September 26, 2000, at URL <http://www.iran-daily.com/4/>). A 12,000-t/yr copper plant was proposed for Meshkin-Shahr in Ardebil Province (Iran Daily, September 28, 2000, European banks grant 30m euros for copper plant, accessed October 2, 2000, at URL <http://www.iran-daily.com/3/>). Also proposed was construction of copper mines at the Meiduk and the Songun prospects.

Gold.—Much of the gold recovered in Iran was a coproduct of NICICO's Sar Cheshmeh copper complex operations.

Additional gold was recovered from the Mouteh Mine and from gold placer mines in the Neyshabour area.

Zarcán was exploring for gold on the Agh Darreh prospect in northwestern Iran and the Baluchestan project in southeastern Iran. On the Agh Darreh gold property, the Pouya Zarcán Agh Darreh Co. (the joint venture of Zarcán and IRAMCO Aluminum Raw Material Co.) completed a prefeasibility study and a reverse circulation drilling program.

Iron and Steel.—Numerous iron and steel projects were at various stages of planning or construction. Voest-Alpine Industrieanlagenbau GmbH & Co. was contracted to increase the capacity of National Iranian Steel Co.'s 3.5-million-metric-ton-per-year-(Mt/yr)-capacity beneficiation plant at the Gol-e-Gohar iron ore mine to 5.2 Mt/yr (Metal Bulletin, 2000c). Other projects included the expansion of Isfahan Steel Co.'s plant with the addition of a 150-metric-ton (t) electric-arc furnace and a third blast furnace (1.4-Mt/yr capacity) proposed to be in production by 2003. At Khorasan, the 550,000-t/yr rolling mill was completed. Proposed expansion plans at Khorasan included a 110-t electric-arc furnace and a billet caster. Also proposed were a 800,000-t/yr sponge iron plant at the Zamzam Steel Mill in Khuzestan Province, a 765,000-t/yr rolling mill at Zagros, and a 70,000-t/yr cast iron plant in Asadabad in Hamedan Province (Metal Bulletin, 2000d; Mining Journal, 2000; Iran Daily, August 20, 2000, Economy—Steel Accord signed with China, accessed August 21, 2000, at URL <http://www.iran-daily.com/1/>; Tehran Times, April 21, 2001, Isfahan steel mill output hits 2m-ton mark, accessed April 20, 2001, at URL <http://www.tehrantimes.com/Description.asp?Da=4/21/01&Cat=9&Num=9>).

During 2000, Azarbaijan Steel Co.'s Mianeh Steel complex in East Azarbaijan Province started production at its new rolling mill. The mill had a capacity of 550,000 t/yr of light sections and industrial and construction round bars (Iran Daily, December 25, 2000, An introduction to Azarbaijan Still [sic] Mill (Mianeh), accessed December 25, 2000, at URL <http://www.iran-daily.com/daily.htm>). Installation of a 150,000-t/yr bar and section mill at Kerman Steel was underway. An 800,000-t/yr Midrex direct-reduced iron plant was under construction at Khuzestan Steel Complex in Ahwaz. Khuzestan's electric-arc furnaces were scheduled for rehabilitation (Metal Bulletin, 2000d).

In 1999, the Mobarakeh Steel plant expanded its mill's hot-rolled coil capacity to 3.1 Mt/yr from 2.5 Mt/yr. Planned further expansion would increase hot-rolled coil capacity to 4.1 Mt/yr. A sixth direct-reduced iron plant was proposed for Mobarakeh (Metal Bulletin, 2000d, 2001). Iran Ferrosilice Co. proposed to expand its total ferrosilicon production capacity by 50,000 t/yr with the construction of two new furnaces (Metal Bulletin, 2000c).

Lead and Zinc.—Most of the nation's lead and zinc production was derived from three mines—the Angouran, the Irankouh, and the Kushk. National Iranian Lead and Zinc Co.'s 40,000-t/yr-capacity lead smelter and Calcimine Co.'s 7,000-t/yr-capacity zinc smelter were at Angouran. In 2000, Calcimine started operations at its 5,000-t/yr Qeshm Zinc Melting Plant joint venture. Calcimine proposed to expand the

production capacity at Angouran to 14,000 t/yr and at Qeshm to 10,000 t/yr (Iran Daily, July 11, 2001, Zinc ingot exported to India, accessed July 17, 2001, at URL <http://www.iran-daily.com/5/>; Iran Daily, October 29, 2000, Promotional item—Calcimine Co., accessed October 30, 2000, at URL <http://www.iran-daily.com/1/>).

In June 2000, a 28,000-t/yr-capacity zinc smelter was dedicated at the Kushk Mine, near Yazd (Iran Daily, June 8, 2000, Major zinc agreement to be inked, accessed June 12, 2000, at URL <http://www.iran-daily.com/3/>).

Cominco Ltd. of Canada and Iran Zinc Mine Development Co. negotiated the formation of a joint venture to assess the feasibility of mining and leaching the zinc oxides of the Angouran zinc deposit and the building of a 100,000-t/yr zinc refinery (Cominco Ltd., 2000). Anzex Resources Ltd. of Canada secured the rights to evaluate the zinc sulfides at Angouran. The joint venture of General Iranian Mining (50%), Itok GmbH of Austria (25%), and Union Capital (25%) studied the proposed development of the Mehdiabad Zinc project as an open pit mine. The joint venture drilled and initiated environmental studies of the prospect.

Industrial Minerals

Cement.—Production capacity expansion of about 1 Mt/yr was underway in Iran. In 2000, the 100,000-t/yr Azadegan Cement Factory on Qeshm Island began operations. Cement plants were reportedly under construction in Darab and Bushehr (Bell and others, 2001, p. 166-167; Iran Daily, June 27, 2000, Cement production reaches 28 tons, accessed July 3, 2000, at URL <http://www.iran-daily.com/5/>; Iran Daily, July 10, 2000, Qeshm Cement factory goes on stream, accessed July 17, 2000, at URL <http://www.iran-daily.com/6/>).

Fertilizer.—The Geology and Minerals Exploration Organization planned to set up a 50,000-t/yr potash fertilizer plant in the Khour region of Isfahan Province. National Petrochemical Co. (NPC) proposed a 400,000-t/yr ammonia plant and a 660,000-t/yr urea plant at the Petrochemical Economic Zone at Bandar Iman Khomeini. In the Assaluyeh Special Economic/Energy Zone, NPC proposed to erect a fertilizer facility with production capacities of about 750,000 t/yr of ammonia and about 1.2 Mt/yr of urea. The Bandar Assaluyeh plant would use gas from the offshore South Pars Field (Stell, 2000; Iran Daily, November 2, 2000, New fertilizer plant to be tendered, accessed November 8, 2000, at URL <http://www.iran-daily.com/5/>; Tehrantimes.com, September 6, 2000, New fertilizer plant to produce 50,000 tons potash annually, accessed April 21, 2001, at URL <http://213.166.26.12/Detailview.asp?Keyword=minerals&Da=9/6/00&Cat=9&Num=13>).

Stone.—Decorative or dimension stone quarries produced granite, marble, and travertine. Stone quarries accounted for about 20% of Iran's active solid mineral extraction operations. The Government encouraged investment in additional stone cutting and processing facilities and attempted to reduce wastage by limiting explosives use in dimension stone quarries.

Mineral Fuels

An extensive survey of the Iranian portion of the Persian Gulf known as the "Persian Carpet 2000" offshore seismic survey was underway. Initial distribution of data was expected in 2001. As more international oil companies contributed to the development of Iranian oil and gasfields, NIOC was able to focus its attention on deferred exploration opportunities. Recent reserve additions could move Iran even higher on the list of countries with significant oil reserves. In 1999, the discovery of the 26-Gbbl Azadegan Field was announced (Mehrdad Balali, September 29, 1999, Iran makes massive \$100bn oil find, accessed September 29, 1999, at URL <http://www.headlines.co.za/news/sp99/iranoil29.htm>). In 2000, reserves of 1 Gbbl were attributed to the Changuleh prospect (Iran Daily, September 13, 2000, New oil finds, accessed September 18, 2000, at URL <http://www.iran-daily.com/4/>). Additional discoveries in 2000 included the Arash and the Ilam oilfields. As with many other Gulf States, Iran planned to increase production capacity. The proposed 1-Mbbl/d increase would be subject to quotas of the Organization of the Petroleum Exporting Countries (Middle East Economic Digest, 2001c).

On the natural gas front, NIOC announced the discovery of the Tabnak gasfield with reserves of 445 billion cubic meters of gas and 240 million barrels (Mbbl) of condensate, the Homa gasfield with reserves of 190 billion cubic meters of gas and 82 Mbbl of condensate, the Zireh gasfield with reserves of 23 billion cubic meters of gas, the Kerenj gasfield, and the Tosan gasfield (Oil & Gas Journal, 2000a; Iran Daily, August 21, 2000, Iran declares another energy discovery, accessed August 21, 2000, at URL <http://www.iran-daily.com/daily.shtml/>; Petrodata Ltd., August 14, 2000, Petrodata daily upstream—Iran announces onshore gas field discovery, accessed August 14, 2000, at URL <http://www.petrodata.co.uk/CGI/tbcgi.exe?CGILATEST>).

During 2000, construction began on the 72-km, 142-centimeter-diameter dry gas pipeline that would connect the onshore South Pars gas facilities at Assaluyeh to the third transcountry gas pipeline (Iran Daily, March 8, 2000, Construction of South Pars gas pipeline starts, accessed March 15, 2000, at URL <http://www.iran-daily.com/6/>).

A significant proportion of produced natural gas was reinjected. The Government proposed to terminate all gas flaring by the end of the Third Five-Year Economic Development Plan. Many of Iran's mature oilfields had reservoir pressure maintenance problems and were candidates for gas injection.

Plans to construct a 6- to 7.5-Mt/yr liquefied natural gas plant were proposed by a consortium of Indian, Iranian, and Malaysian companies and by the joint venture of BG International and Oil Industries Engineering and Construction Co. of Iran (BG International, 2000; Iran Daily May 21, 2000, Consortium to build \$3.5b Iranian LNG plant, accessed May 22, 2000, at URL <http://www.iran-daily.com/1/>).

For more extensive coverage of the natural gas and petroleum industry of Iran, see the Iran Country Analysis Brief presented by the U.S. Energy Information Administration at URL <http://www.eia.doe.gov/emeu/cabs/iran2.html>.

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Major Sources of Information

- Geological Survey of Iran
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TABLE 1
IRAN: PRODUCTION OF MINERAL COMMODITIES 1/ 2/ 3/

(Metric tons unless otherwise specified)

Commodity 4/ METALS	1996	1997 e/	1998	1999	2000 e/
Aluminum:					
Bauxite, gross weight	150,000	150,000	336,000	912,451	400,000
Metal, primary ingot	80,100	92,300	123,759	137,421	140,000
Arsenic, orpiment and realgar, concentrates e/	500	492	323 r/	300 r/	400
Chromite, mine output, concentrate 5/					
Gross weight	130,220	168,984 6/	313,937	311,235	310,000
Cr ₂ O ₃ content e/	63,800	82,800	138,000	137,000	137,000
Copper:					
Mine output:					
Ore mined (1% to 1.2% Cu):					
Gross weight thousand tons	14,150	14,200	13,740	13,770	13,800
Cu content e/	120,000	117,000	137,000	138,000	138,000
Concentrate (29% to 35% Cu):					
Gross weight e/	320,000	320,000	378,504 6/	381,346 6/	350,000
Cu content	108,000 e/	108,000	128,300	131,000	120,000
Metal:					
Smelter output, blister/anode	99,100	99,000	150,000	154,000	154,000
Refined output, cathode	99,200	103,300	129,000	131,700	132,000
Gold, mine output, Au content 7/ kilograms	640	684 6/	856	930	950
Iron and steel:					
Ore and concentrate:					
Gross weight thousand tons	9,850	12,750	10,536	10,776	11,000
Fe content e/ do.	4,800	6,300	5,200	5,300	5,400
Metal:					
Pig iron do.	1,867	2,053 6/	2,087	2,147	2,200
Direct-reduced iron do.	3,778	4,380 6/	3,690	4,120	4,740
Ferrochromium	10,500	11,450 6/	13,745	13,680	14,000
Ferrosilicon e/	40,000 r/	40,000 r/	40,000 r/	46,000 r/	40,000
Steel, crude, ingots and castings thousand tons	5,415	6,322 6/	5,608	6,277	6,600
Lead:					
Mine output, concentrate:					
Gross weight e/	30,000	37,000	21,216 6/	22,000	27,000
Pb content	15,700 e/	18,200	11,000	11,000 e/	15,000
Refinery output, includes secondary	46,900	49,400	47,000	47,000 e/	47,000
Manganese, mine output, (30% to 35% Mn):					
Gross weight	100,000	135,000	101,390	104,096	105,000
Mn content e/	32,000	40,000	30,500	32,000 r/	32,000
Molybdenum, mine output, concentrate (56% Mo): e/					
Gross weight	1,600	1,800	4,350 6/	4,906 6/	4,900
Mo content	560	600	1,400	1,600	1,600
Silver, mine output, Ag content e/	40	30	19 6/	21 6/	22
Zinc:					
Mine output, concentrate:					
Gross weight e/	152,000	132,000	160,000	160,000	170,000
Zn content	76,300	76,500	80,000 e/	80,000 e/	85,000
Metal e/	--	14,000	23,000	23,000	50,000
INDUSTRIAL MINERALS					
Asbestos: e/					
Concentrate, (3% to 8% marketable fiber)	65,000	86,200	45,000	40,000	40,000
Marketable fiber	4,500	4,300	2,258 6/	2,000	2,000
Barite	150,000 e/	181,174 6/	187,677	183,850	185,000
Boron, borax e/	500	420	2,086 6/	3,663 6/	3,700
Cement, hydraulic e/ thousand tons	18,350	19,250	19,500 r/	22,080 r/ 6/	23,880 6/
Clays:					
Bentonite	85,000	105,300 6/	83,279 6/	64,957	70,000
Other: e/					
Industrial clays	300,000	350,000	450,000	400,000	450,000
Kaolin	350,000	478,964 r/ 6/	582,485 6/	837,277 6/	800,000
Total	650,000	828,964 r/	1,030,000	1,237,000	1,250,000
Diatomite e/	90	90	600	4,350	4,500
Feldspar	106,000	125,000 6/	185,709	239,779	240,000
Fluorspar	20,000 e/	24,846 r/ 6/	25,904	18,387	20,000

See footnotes at end of table.

TABLE 1--Continued
IRAN: PRODUCTION OF MINERAL COMMODITIES 1/ 2/ 3/

(Metric tons unless otherwise specified)

Commodity 4/	1996	1997 e/	1998	1999	2000 e/
INDUSTRIAL MINERALS--Continued					
Gemstones, turquoise e/ kilograms	5,000	14,000 r/ 6/	6,000 6/	20,000	20,000
Gypsum thousand tons	8,570	9,966 r/ 6/	11,843	10,834	11,000
Industrial or glass sand (quartzite and silica) e/	1,000,000	1,000,000	1,000,000	1,000,000	1,000,000
Lime e/ thousand tons	2,000 r/	2,500 r/ e/	2,737 r/ 6/	2,138 r/ 6/	2,200
Magnesite e/	55,000	119,000 r/ 6/	109,597 6/	141,081 6/	141,000
Mica e/	1,000 r/	1,086 r/ 6/	1,084 6/	1,425 6/	2,000
Nitrogen:					
N content of ammonia	882,000	879,800 6/	1,034,000	865,000 r/	965,000 6/
N content of urea	552,900	610,500 6/	800,000 e/	800,000 e/	800,000
Perlite e/	6,000	10,000	13,320 6/	15,069	15,000
Pigments, mineral, natural iron oxide, ochre e/	2,500	10,000 r/	13,300 r/	13,300 r/	13,500
Pumice and related volcanic materials e/	200,000	200,000	150,000	150,000	150,000
Salt	1,000,000 e/	1,180,000	1,911,800 6/	1,600,000	1,600,000
Sodium compound, caustic soda e/	15,000	15,000	20,000	20,000	20,000
Stone: e/					
Construction and building, crushed, n.e.s. thousand tons	4,800	14,828 r/ 6/	11,670 r/ 6/	11,000 r/	12,000
Dimension and decorative:					
Granite do.	150 r/ e/	195 r/ 6/	181 6/	195 6/	200
Marble:					
Blocks do.	4,500	4,500	6,000	6,400	7,000
Crushed do.	450	450	500	500	550
Slabs do.	50	50	100	100	110
Travertine:					
Blocks do.	500	550 r/	516 6/	435 6/	500
Crushed and slabs do.	70	70	100	65	100
Total do.	5,720 r/	5,815 r/	7,400 r/	7,700 r/	8,500
Dolomite do.	200	267 r/ 6/	475	286 6/	300
Limestone do.	32,000	33,000	33,000	33,000	35,000
Strontium, celestite e/	2,000 r/	2,000 r/	2,000 r/	1,650 6/	2,000
Sulfates, natural: e/					
Aluminum potassium sulfate (alum)	12,000	12,000	12,000	12,000	12,000
Sodium sulfate	315,000 6/	480,000	264,973	308,093	300,000
Sulfur: e/					
Byproduct of petroleum and natural gas	840,000	850,000	1,280,000	1,302,000	1,300,000
Byproduct of metallurgical processing, S content of acid	50,000	50,000	50,000	48,000	50,000
Total	890,000	900,000	1,330,000	1,350,000	1,350,000
Talc e/	20,000	29,660 r/ 6/	27,038 r/ 6/	25,000 r/	25,000
MINERAL FUELS AND RELATED MATERIALS					
Coal thousand tons	1,840	1,750	1,711	1,507	1,500
Coke e/ do.	700	800	22,000 6/	20,000	25,000
Gas, natural:					
Gross million cubic meters	86,000	82,600	89,000	90,600 e/	120,000
Dry do.	39,077	47,000	50,000	51,000 e/	55,000
Natural gas plant liquids e/ thousand 42-gallon barrels	23,500	22,000	23,000	24,000	25,000
Petroleum:					
Crude do.	1,345,390	1,337,360 6/	1,325,000	1,300,000 e	1,360,000
Refinery products: e/					
Liquefied petroleum gases do.	23,000	14,500	15,700	15,000	16,000
Motor gasoline do.	54,400	54,500	65,700	60,000	65,000
Jet fuel do.	10,200	10,000	13,000	11,000	12,000
Kerosene do.	35,800	36,000	40,000	36,000	40,000
Distillate fuel oil do.	108,800	109,000	136,000	120,000	140,000
Residual fuel oil do.	98,600	98,000	163,000	140,000	160,000
Other do.	64,200	64,000	61,000	60,000	67,000
Total do.	395,000	386,000	494,400	442,000	500,000

e/ Estimated. r/ Revised.

1/ Table includes data available through August 31, 2001.

2/ Data are for Iranian years ending March 21 of that stated, except data for natural gas, plant liquids, and petroleum, which are for Gregorian calendar years.

3/ Estimated data are rounded to no more than three significant digits; may not add to totals shown.

4/ In addition to commodities listed, the following may have been produced, but information is inadequate to estimate output: ferromanganese, ferromolybdenum, nepheline syenite, phosphate rock, selenium, shell, vermiculite, and zeolite.

5/ Chromite content of concentrate estimated to be 48% to 50% Cr₂O₃ for 1995 through 1997 and 42% to 45% Cr₂O₃ for 1998 and 1999.

6/ Reported figure.

7/ Includes gold recovered from the Mouteh gold mine and from the Sarcheshmeh copper complex.

TABLE 2
IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2000 1/ 2/

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies (and major equity owners)	Location of facilities	Annual capacity
Aluminum	Iran Aluminium Co. (Government)	Arak	120
Do.	Al-Mahdi Aluminium Corp. (National Iranian Copper Industries Co., 33.32%, International Development Corp., 18.9%, Iran Aluminium Co., 13.9%, Maydook Copper Co., 11.95%)	Bandar Abbas	110
Do.	Qeshm Aluminium Co. (Prime International Ltd.)	Qeshm Island Free Trade Area	NA
Arsenic	metric tons NA	Zarshuran Mine, Tabak	440
Barite	Iran Barite Falat Co.	Lar Mine, Tehran	46
Do.	do.	Elit Mine, Amol	21
Do.	do.	Dasht-E-Deh Mine, Kavir Dar Anjir	12
Do.	do.	Haji abad Mine; Komsheh Cheh Mine; Kashan, Ardekan Mine; Djasb Mine; and Vardeh Mine	18
Do.	Other companies	Other mines	148
Boron	NA	Gharagol Mine, Tabak	2,800
Cement	Abadeh Cement Co.	Abadeh	NA
Do.	Abyek Cement Co. (Fars & Khouzestan Cement Co.)	Abyek, 80 kilometers northwest of Tehran	2,300
Do.	Ardebil Cement Co. (Ehdasse Sanat Corp.)	About 20 kilometers from Ardebil	840
Do.	Azadegan Cement Factory	Qeshm Island	100
Do.	Behbahan Cement Co. (Fars & Khouzestan Cement Co.)	Behbahan	880
Do.	Bojnourd Cement Plant	Bojnourd	700
Do.	Bushehr Cement Co. (Ehdasse Sanat Corp.)	Borazjan	1,100 3/
Do.	Darab Cement Co. (Ehdasse Sanat Corp.)	Near Shiraz	1,100 3/
Do.	Doroud Cement Co. (Fars & Khouzestan Cement Co.)	Doroud	1,440
Do.	Ekbatan Cement Co.	Ekbatan	NA
Do.	Estahban Cement Co.	Estahban	NA
Do.	Fars Cement Co. (Fars & Khouzestan Cement Co.)	Fars	1,050
Do.	Ghaen Cement Co. (Iran National Industrial Organization)	Ghaen	600
Do.	Gharb Cement Co.	Kermanshah	640
Do.	Gorgon Cement Co.	NA	640
Do.	Hegmatan Cement Co. (Ehdasse Sanat Corp.)	East of Razan	840
Do.	Hormozgan Cement Co. (Ehdasse Sanat Corp.)	About 52 kilometers west of Bandar Abbas	2,200
Do.	Ilam Cement Co.	Ilam	NA
Do.	Isfahan Cement	Isfahan	710
Do.	Karoon Cement Co.	Karoon	NA
Do.	Kerman Cement Co.	Kerman	1,150
Do.	Khash Cement Co. (Ehdasse Sanat Corp.)	Khash	730
Do.	Khazar Cement Co.	Khazar	640
Do.	Khouzestan Cement Co. (Ehdasse Sanat Corp.)	Ramhormoz	1,100
Do.	Kordestan Cement Co. (Ehdasse Sanat Corp.)	North of Bijar	800
Do.	Mazandaran Cement Co.	Neka	NA
Do.	Meshed Cement Co.	Meshed	500
Do.	Ourmia Cement Co.	Urumiyeh	740
Do.	Ourmia White Cement Co.	do.	180
Do.	Nyritz White Cement Co.	Nyritz	NA
Do.	Saveh White Cement Co.	Saveh	180
Do.	Sepahan Cement Co.	Sepahan	2,100
Do.	Shahrud Cement Co.	Sharoud	NA
Do.	Sharg Cement Co.	Mashhad	NA
Do.	Shomal Cement Co.	Shomal	880
Do.	Shomal White Cement Co.	do.	NA
Do.	Simansaz Cement Co.	Loshan	100
Do.	Sufiyan Cement Co.	Sufiyan	1,500
Do.	Tabriz Cement Co.	Tabriz	NA
Do.	Tehran Cement Co.	Tehran	3,000
Do.	Yazd Bohrouk Cement Co.	Yazd	NA
Do.	Yazd White Cement Co.	Hemgaman	NA
Chromite	Faryab Mining Co.	Faryab Mine, Minab, Hormuzgan	180
Do.	NA	Mine at Esfandaqeh	30
Do.	NA	Forumad Mine, Mayami, Semnan	6
Do.	NA	Mir Mahmud Mine, Mayami, Seman	6
Do.	NA	Bandan Mine, Khorasan	5
Do.	NA	Mokki Mine, Zahedan	4
Do.	NA	Nok Abad, Zahedan	3
Do.	NA	Gaft Mine, Khorasan	2

See footnotes at end of table.

TABLE 2--Continued
IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2000 1/ 2/

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of facilities	Annual capacity
Chromite--Continued:	Other companies	Other mines	21
Clay:			
Bentonite	Iran Barite Falat Co.	Mehrijan Mine, Farrokhi, Esfahan	39
Do.	do.	Zarrin Mine, Kavir Dar Anjir, Yazd	3
Do.	Other producers	Other mines	121
Industrial and fire clay	Iranian Refractory Procurement and Production	Mine and plant, Tehran	40
Do.	Other producers	Other mines	1,117
Kaolin	Khorasan Kaolin Co.	Shurkesht Mine, Sabzevar, Khorasan	50
Do.	do.	Mine (inactive) at Torbat Hydarieh, Khorasan	20
Do.	do.	Plant at Torbat Hydarieh, Khorasan	20
Do.	Other companies	Other mines	700
Coal	Iran Foulad Co.	Paradeh 3 Mine, Tabass, Khorasan	14
Do.	Kerman Coal Co. (National Iranian Steel Company [Nisco])	Various mines	854
Do.	Central Alborz Coal Co. (Nisco)	Zirab, Mazandaran	NA
Do.	Eastern Alborz Coal Co. (Nisco)	Shahrud, Mazandaran	NA
Do.	do.	Razi coal mine, Semnan	39
Do.	Western Alborz Coal Co. (Nisco)	Near Sangroud, Gilan	NA
		Total--Central, Eastern, and Western Alborz Coal	641
Do.	NA	East Mazinoo and West Mazinoo, Khorasan	4
Coal Tar	Isfahan Coal Tar Refinery	Refinery, 40 kilometers east of Esfahan	100
Cobalt	NA	Eglide Mine, Fars	NA
Coke	Isfahan Steel Co. (Nisco)	Isfahan complex, 40 kilometers east of Esfahan	1,150
Copper	National Iranian Copper Industries Co. (Government)	Sar Cheshmeh Mine, 60 kilometers south of Rafsanjan	13,400
Do.	do.	Songun copper mine	400 3/
Do.	do.	Meiduk copper mine	5,000 3/
Do.	do.	Qal'eh Zari Mine, near Birjan	15
Do.	do.	Smelter, Sar Cheshmeh copper complex	154
Do.	do.	Smelter, Khatounabad	80 3/
Do.	do.	Refinery, Sar Cheshmeh copper complex	120 4/
Do.	do.	Electrowon plant, Sar Cheshmeh copper complex	12 4/
Do.	do.	Rolling mill (billet), Sar Cheshmeh copper complex	3
Do.	do.	Rolling mill (slab), Sar Cheshmeh copper complex	7
Do.	do.	Wire rod plant, Sar Cheshmeh copper complex	51
Do.	Shahid Bahonar Copper Industries Co. (Social Security Investment Co.)	Mill at Kerman	35
Do.	Simco.	Wire plant at Rasht	NA
Copper, secondary	Niru Metal Smelting Factory (Niru Battery Manufacturing Co.)	Ghani Abad Factory, Tehran	NA
Diatomite	NA	Kamel Abad, Tabriz	2
Ferroalloys:			
Ferrochromium	Faryab Mining Co.	Faryab, Kerman	15
Ferromanganese	Navid Manganese Co.	NA	15
Do.	Faryab Mining Co.	Kerman	15
Ferromolybdenum	Pars Molybdenum Co.	NA	1
Do.	National Iranian Copper Industries Co. (Government)	Khatounabad smelter	2
Do.	Zanjan Bronze	NA	1
Ferrosilicon	Iran Ferrosilice Co.	Azna, Semnan	25
Do.	Iran Ferroalloy Ind.	NA	23
Do.	Navid Alyaj Co.	NA	1
Fertilizer:			
Ammonia	Razi Petrochemical Co. (National Petrochemical Co.)	Bandar Iman Khomeini	660
Do.	Shiraz Petrochemical Co. (National Petrochemical Co.)	Southeast of Shiraz	432
Do.	Khorasan Petrochemical Co. (National Petrochemical Co.)	Khorasan Province	330
Di-ammonium phosphate	Razi Petrochemical Co. (National Petrochemical Co.)	Bandar Iman Khomeini	240
Urea	do.	do.	726
Do.	Shiraz Petrochemical Co. (National Petrochemical Co.)	Southeast of Shiraz	543
Do.	Khorasan Petrochemical Co. (National Petrochemical Co.)	Khorasan Province	495
Fluorspar	NA	Kamar Mehdi Mine, 165 kilometers southwest of Tabas	20
Do.	NA	Emaft Mine, 30 kilometers from Zirab, Mazandaran	3
Do.	NA	Kamarposht Mine, 20 kilometers from Zirab	5
Do.	NA	Helali Gonabad Mine, 27 kilometers from Gonabad-Bajestan road	2
Do.	NA	Delijan Region Mines, 10 kilometers from Delijan, Markazi	6

See footnotes at end of table.

TABLE 2--Continued
IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2000 1/ 2/

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners		Location of facilities	Annual capacity
Fluorspar--Continued:	NA		Mahalat Mine, 5 kilometers from Mahalat, Markazi	2
Do.	NA		Pachi Miyana Mine, 30 kilometers from Zirab	2
Do.	NA		Jouimand Mine, 23 kilometers northwest of Gonabad, Khorasan	NA
Do.	NA		Derasele deposit	NA
Gemstones, turquoise	NA		Neyshabour Mine	6
Gold, ore kilograms	NA		Moteh Mine, Esfahan	500
Do.	do.	Iranian Gold Co.	Cengedeh operation	128
Do.	do.	Artisanal placer operations	Neyshabour area	NA
Gold 4/	do.	National Iranian Copper Industries Co.	Sar Cheshmeh	500
Gypsum	Private owner		Semnan-Mazandran Mine, Semnan	476
Do.	do.		Saran 2 Mine, Tehran	181
Do.	do.		Zevan Mine, Semnan	171
Do.	do.		Saran 1 Mine, Tehran	134
Do.	do.		Aftar Mine, Semnan	130
Do.	do.		Momenabad Mine, Semnan	118
Do.	Other producers		Various mines	8,154
Iron				
Ore	Gol-e-Gohar Iron Ore Co. (Nisco)		Gol-e-Ghar Mine, Kerman	5,200 3/
Do.	Chadormalou Mining and Industrial Co. (Nisco)		Chadormalou Mine, 90 kilometers north of Tchogart	3,800
Do.	Iran Central Iron Ore Co. (Nisco)		Choghart Mine, Bafgh, Yazd	3,250
Do.	NA		Sangan Mine, Golestan	100
Do.	Iran Barite Falat Co.		Deh-Zaman Mine, Khorassan	4
Do.	Ajin Iron Mining Co.		NA	NA
Metal	Mobarekeh Steel Co. (Nisco)		Direct reduction iron plant (Midrex process) at Esfahan	3,200
Do.	Khuzestan Steel Co. (Nisco)		Direct reduction iron plant (HYL I, Midrex 3/, and Purofer processes), Ahwaz	2,230
Do.	Isfahan Steel Co. (Nisco)		Direct reduction iron plant (Ghaem process) at Esfahan	600 6/
Lead				
Ore	Iran Zinc Mine Development Co.		Angouran Mine, Zanjan	450 7/
Do.	Bama Mining Co.		Irankouh Mine, Esfahan	290 7/
Do.	National Iranian Lead and Zinc Co.		Kushk Mine, Yazd	175 7/
Do.	do.		Douna Mine	38
Do.	do.		Nakhlak Mine, 60 kilometers northeast of Anarak	25
Do.	do.		Emarat Mine, Markazy	NA
Do.	do.		Ravanj Mine, Markazy	NA
Metal	do.		Smelter at Zanjan	40
Do.	do.		Refinery at Zanjan	40
Do.	do.		Refinery at Naklak	NA 8/
Lead, secondary	Niru Metal Smelting Factory (Niru Battery Manufacturing Co.)		Tehran	40
Lime	National Iranian Copper Industries Co.		Sarcheshmeh Copper Complex	NA
Do.	Ardebil Cement Co.		Azarshahr Lime Plant	NA
Manganese	Iran Manganese Mines Co.		Venarch Manganese Mine, Qom	70
Do.	Qom Manganese Mines Co.		Shahrestouak Mine, Qom	3
Methanol	Kharg Petrochemical Co. (National Petrochemical Co.)		Kharg Island	660
Do.	Shiraz Petrochemical Co. (National Petrochemical Co.)		Shiraz	100
Do.	Fanavaran Petrochemical Co. (National Petrochemical Co.)		Bandar Imam	1,000 3/
Mica metric tons	Private owner		Qareh Bagh Mine, Uroumیه region	1,386
Do.	do.	do.	Other mines	320
Molybdenum	National Iranian Copper Industries Co.		Sarcheshmeh Copper Complex	NA
Natural gas:				
Production 9/				
billions cubic meters	National Iranian Gas Co. (Government)		Kangan	21
Do.	do.	do.	Nar	17
Do.	do.	do.	Dalan	8
Do.	do.	do.	Aghar	6
Processing	do.	do.	Vali Asr gas refinery, 40 kilometers from Bandar Taheri	38
Do.	do.	do.	Sarkhoun-2, near Bandar Abbas	4
Do.	do.	do.	Dalan	13
Do.	do.	do.	Khangiran	8
Do.	do.	do.	Bid Boland	NA
Do.	do.	do.	Qeshm Island	NA
Do.	do.	do.	Marun-4	NA

See footnotes at end of table.

TABLE 2--Continued
IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2000 1/ 2/

(Thousand metric tons unless otherwise specified)

Commodity		Major operating companies and major equity owners	Location of facilities	Annual capacity
Natural gas--Continued:				
Processing	do.	do.	Ahwaz	1
Liquids				
	million 42-gallon barrels	do.	NGL 1200, Gachsaran	9 3/
Do.	do.	do.	Ahwaz	7
Do.	do.	do.	NGL 1300, Siyah Makan	6 3/
Do.	do.	do.	Lavan	NA 3/
Peat	metric tons	Private owner	Mazandaran	1,430
Perlite	do.	do.	Miyaneh Mine, Tabriz	7,000
Do.	do.	do.	Shahriyar Mine, Tabriz	5,000
Do.	do.	Private owners	Other operations	8,400
Petroleum:				
Crude production				
	million 42-gallon barrels	National Iranian Oil Co. (NIOC) (Government)	Ahwaz Asmari Field	292
Do.	do.	do.	Gachsaran Field	219
Do.	do.	do.	Marun Field	208
Do.	do.	do.	Agha Jari Field	69
Do.	do.	do.	Ahwaz Bangestan Field	58
Do.	do.	do.	Bibi Hakimeh Field	55
Do.	do.	TotalElfina Group (55%), Agip (45%)	Doroud Field, offshore	53
Do.	do.	NIOC	Abouzar Field, offshore	46
Do.	do.	do.	Karanj Field	46
Do.	do.	do.	Rag-e-Safid Field	37
Do.	do.	do.	Salman Field, offshore	31
Do.	do.	TotalElfina Group (70%), Petronas (30%)	Sirri E Field, offshore	31
Do.	do.	NIOC	Pazanan Field	29
Do.	do.	do.	Mansuri Field	22
Do.	do.	do.	Kupal Field	20
Do.	do.	do.	Nargesi Field	18
Do.	do.	do.	Binak Field	18
Do.	do.	do.	Ab-Teymur Field	16
Do.	do.	NIOC	Haft Kel Field	15
Do.	do.	do.	Lab-e-Safid Field	15
Do.	do.	do.	Cheshmeh Khush Field	14
Do.	do.	do.	Forozan Field, offshore	13
Do.	do.	do.	Ramshir Field	11
Do.	do.	do.	Naft Safid Field	9
Do.	do.	do.	Sirri C and Sirri D Fields, offshore	9
Do.	do.	do.	Bahregansar Field, offshore	7
Do.	do.	Total (70%), Petronas (30%)	Sirri A Field, offshore	7
Do.	do.	NIOC	Shadegan Field	7
Do.	do.	Iranian Offshore Engineering & Construction Co.	Soroosh Field, offshore	7
Do.	do.	NIOC	Resalat and Reshadat Fields, offshore	5
Do.	do.	do.	Naft-Shahre Field	5
Refined products				
	do.	National Oil Refining and Distribution Co.	Abadan	164
Do.	do.	do.	Esfahan	97
Do.	do.	do.	Bandar Abbas	85
Do.	do.	do.	Tehran	82
Do.	do.	do.	Arak	55
Do.	do.	do.	Tabriz	41
Do.	do.	do.	Shiraz	15
Do.	do.	do.	Kermanshah	11
Do.	do.	do.	Lavan	7
Phosphate Rock				
		Phosphate Mines Development C	Esfordi Mine, Yazd	141
Do.		Other companies	Other mines	29
Pozzolana				
		Private owner	Keshavarz Mine	39
Do.		Other companies	Other mines	105
Salt				
Rock				
		Private owner	Melhe Mine, Semnan	116
Do.		do.	Khohdasht Kohan Mine, Semnan	95
Do.		do.	Salar Mine, Semnan	54
Do.		do.	Gaem Mine, Semnan	37
Do.		Other companies	Other mines	419

See footnotes at end of table.

TABLE 2--Continued
IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2000 1/ 2/

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of facilities	Annual capacity	
Salt--Continued:				
Solar	Bandar Imam Petrochemical Co. (National Petrochemical Co.)	Bandar Iman Khomeini operation, Khouzeestan	400	
Do.	Shiraz Petrochemical Co. (National Petrochemical Co.)	Maharlo Shiraz facility, Fars	352	
Do.	Private owner	Gavehkoni Mine, Esfahan	42	
Do.	Other companies	Other operations	91	
Silver	National Iranian Lead & Zinc Co.	Zanjan lead smelter, Zanjan	12	
Steel:				
Crude	Mobarekeh Steel Co. (Nisco)	Steel plant near Esfahan	3,100	
Do.	Isfahan Steel Co. (Nisco)	Steel plant at Esfahan	1,940	
Do.	Iran National Steel Industrial Group (Nisco)	Steel plant at Ahwaz	1,000	
Do.	Khuzestan Steel Co. (Nisco)	do.	1,000	
Do.	Khorasan Steel Co. (Nisco)	Steel plant at Neyshabur	600 3/	
Do.	Iran Alloy Steel Co (Nisco, 63%; Bank Saderat Iran, 37%)	Yazd steel plant	250	
Rolling mills	Mobarekeh Steel Co. (Nisco)	Rolling mills (hot strip) at Esfahan	3,100	
Do.	do.	Rolling mills (cold reduction) at Esfahan	875	
Do.	Saveh Rolling and Profile Mills Co.	Pipe and section mill at Saveh	805	
Do.	Kaavian Steel Co. (Nisco)	Rolling mills	800	
Do.	Isfahan Steel Co. (Nisco)	Rolling mill (medium sections) at Esfahan	700	
Do.	do.	Rolling mill (light sections) at Esfahan	700	
Do.	Ahwaz Rolling & Pipe Mills Co. (Government)	Rolling mill mill at Ahwaz	600	
Do.	Esfahan Steel Co. (Nisco)	Rolling mill (heavy sections) at Esfahan	550	
Do.	Khorasan Steel Co. (Nisco)	Rolling mill at Khorasan	550	
Do.	Mianeh Steel Plant (Azarbaijan Steel Co.)	Rolling mill in East Azarbaijan	550	
Do.	Khuzestan Steel Co. (Nisco)	Rolling mill at Ahwaz	540	
Do.	Iran Alloy Steel Co (Nisco, 63%; Bank Saderat Iran, 37%)	Rolling mill (heavy sections) at Yazd	210	
Do.	Sepahan Industrial Group Co.	Tube & pipe mill at Esfahan	200	
Do.	Kerman Steel Co.	Bar & section mill	150 3/	
Do.	Iran Alloy Steel Co (Nisco, 63%; Bank Saderat Iran, 37%)	Rolling mill (light sections) at Yazd	145	
Do.	Iran Spiral Co.	Tube and pipe mill (41 to 305 centimeters diameter) at Esfahan	120	
Do.	Isfahan Steel Co. (Nisco)	Wire rod plant at Esfahan	120	
Do.	Ahwaz Rolling & Pipe Mills Co.	Tube and pipe mill (0.1 to 15 centimeters diameter) at Ahwaz	80	
Do.	Kalup Co.	Tube and pipe mill (15 to 36 centimeters diameter) at Saveh	60	
Stone, sand and gravel: 10/				
Dolomite	Private owners	Sundry quarry operations	300	
Granite	metric tons	Private owner	Tavandasht Mine, Lorestan	3,000
Do.	do.	do.	Gasaban Mine, Hamedan	800
Do.	do.	Private owners	Other operations	243,000
Do.	square meters	Saeid Granite Co.	Stone processing factories at Ghorveh and Tehran	60,000
Limestone	Private owner	Bibisharhbani Mine, Tehran	1,700	
Do.	do.	Chelleh Kaneh Mine, Tabriz	1,500	
Do.	do.	Lashtegan Mine, Hormozgan	1,200	
Do.	do.	Pirbakran Mine, Esfahan	1,110	
Do.	do.	Asmari Mine, Khouzeestan	1,000	
Do.	do.	Kash Mine, Sistan & Baluchestan	890	
Do.	do.	Doroud Mine	830	
Do.	do.	Karzan Mine, Ilam	760	
Do.	do.	Shiraz Mine, Fars	720	
Do.	do.	Ablou Mine, Mazardaran	670	
Do.	do.	Hozmahi Mine, Esfahan	470	
Do.	do.	Chenareh Mine, 200 kilometers from Khoramshahr City	300	
Do.	Private owners	Various other quarry operations	31,100	
Marble	Private owner	Tangeh Hanna E Nyriz Mine, Fars	8,000	
Do.	do.	Libeed Mine, Esfahan	1,100	
Do.	do.	Chahsavar South Nyriz Mine, Fars	600	
Do.	do.	Lashtar Mine, Esfahan	445	
Do.	do.	Asgaran Mine, Lorestan	320	
Do.	do.	Aligodare Mine, Lorestan	270	
Do.	do.	Hetnabad Mine, Esfahan	220	
Do.	do.	Gadamgah Mine, Hormozgan	190	
Do.	Ahjar Dehbid Com., Co.	Dehbid Mines, Fars	180	
Do.	Private owner	Jashegangali Mine, Esfahan	120	

See footnotes at end of table.

TABLE 2--Continued
IRAN: STRUCTURE OF THE MINERAL INDUSTRY IN 2000 1/ 2/

(Thousand metric tons unless otherwise specified)

Commodity	Major operating companies and major equity owners	Location of facilities	Annual capacity
Marble--Continued:	Private owner	Darbehchah Mine, Lorestan	119
Do.	do.	Najafabad Mine, Esfahan	46
Do.	do.	Gavoshani Mine, Jordestan	27
Do.	do.	Falard Mine, Shahrekord	21
Do.	do.	Sirjan Mine, Kerman	20
Do.	do.	Doroud Mine, Lorestan	9
Do.	do.	Gohareh Mine, Kermanshah	8
Do.	Private owners	Various other quarry operations	2,500
Do.	NA	Stone cutting facilities at the Sangal-e-Nyriz complex	NA
Onyx	Private owner	Sefied Koh Mine, Yazd	7
Do.	do.	Borg Mine, Yazd	5
Do.	do.	Deh rostan Mine, Kerman	4
Do.	Private owners	Various other quarry operations	54
Silica and silica sand	do.	Various sand pit operations	1,719
Travertine	Private owner	Hajiabad Mine, Arak	118
Do.	do.	Targ Mine (Natanz), Esfahan	22
Do.	do.	Vargoran Targ Mine (Natanz), Esfahan	19
Do.	do.	Alvan Varton Mine, Esfahan	10
Do.	Private owner	Nadinlou Mine (Azarshahr), Tabriz	10
Do.	do.	Colvanag 1 Mine, Tabriz	10
Do.	do.	Sardarabad Mine, Tabriz	10
Do.	do.	Colvanag 2 Mine, Tabriz	8
Do.	Private owners	Other operations	365
Do.	NA	Travertine cutting complex at Sangal-e-Azarshahr	NA
Sulfur:	National Oil Refining and Distribution Co.	Abadan, Bandar Abbas, Tehran, Isfahan, Arak, Tabriz	NA
Do.	National Petrochemical Co.	Kharg Chemical Complex, Kharg Island	216
Do.	National Iranian Gas Co.	Various gas plants	NA
Talc	Private owner	Deh Haji Mine, Lorestan	10
Do.	do.	Other operations	12
Vermiculite	NA	Mohammad abad Klaybar	2
Zeolite	Private owner	Aftar Mine, Semnan	10
Do.	do.	Mjyaneh Mine, Tabriz	10
Do.	do.	Amir Abad Mine, Tabriz	8
Do.	do.	Abeh Garm, Semnan	6
Zinc			
Ore	Iran Zinc Mine Development Co.	Angouran Mine, Zanjan	450 7/
Do.	BAMA Co.	Irankouh (Goushfil, Tapeh Sorhk, and Kolah Darvazeh pits) Mine, Esfahan	290 7/
Do.	National Iranian Lead & Zinc Co.	Kushk Mine, Yazd	175 7/
Do.	Bafgh Mining Co.	N/A	25
Do.	National Iranian Lead & Zinc Co.	Ahangaran Mine	NA
Concentrate	Iran Zinc Mine Development Co.	Dandi Calcination plant, Zanjan	50
Do.	Calcimine Co.	Khoramshar plant	4 8/
Do.	Mineral Processing Co. of Iran	N/A	NA
Metal	Bafgh Zinc Smelting Co.	Bafgh, Yazd	28
Do.	Angoran Zinc Melting Co. (Calcimine Co.)	Smelter at Angouran Mine, Zanjan	7
Do.	Qeshm Zinc Melting Co. (Calcimine Co.)	Qeshm Island	5

e/ Estimated. NA Not available.

1/ About 2,700 mines are in Iran, about 2,000 of which are active. About 65% of the active mines produce building and construction materials.

2/ Data were augmented by input from the Iranian National Committee of the World Mining Congress.

3/ Under construction.

4/ Refinery and electrowon output included 730-centimeter x 66-centimeter x 12.7-centimeter slabs (41,000-t/yr capacity), 730-centimeter x 25-centimeter billets (34,000-t/yr capacity), 8-millimeter wire rod (107,000-t/yr capacity), copper powder, or brass alloy.

5/ Gold is also recovered from Sar Chemesh copper plant slimes.

6/ In addition, a 600,000-metric-ton-per-year-capacity Zam Zam process direct reduction iron plant was under construction.

7/ Includes lead and zinc ores.

8/ Closed.

9/ Only includes non-associated gas production.

10/ Approximately 500 dimension stone (decorative stone) quarries are in Iran.